TEXTILE READER'S GUIDE

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Abstracts

FIBERS A

Natural fibers A 1

Elastic recovery of textile fibers

Anon. *Textile Recorder 69,* 79-82 (Nov. 1951).

A discussion of the interpretation of elasticity as applied to textile fibers and an outline of the results of some of the latest researches on the subject of elastic recovery. Curves showing the variation in immediate and delayed elastic recovery and permanent set of various fibers.

Elasticity of cellulose fibers

R. W. Amussen, F. Anderson & B. Krawack *Contr. Danish Inst. Textile Res.* No. 12, 13 pages (1950).

The static and dynamic moduli of elasticity of rayon and cotton fibers were measured in different salt solutions. The results are shown in tables and diagram.

The frictional properties of wool

A. J. Hall. *Textile Mercury and Argus 125,* 596-8 (Oct. 5, 1051).

See front section.

Microscopical observations on the contents of the cotton fiber lumen. A-1

Mamie S. Catlett, Ruth Giuffria, Anna T. Moore & Mary L. Rollins. *Textile Res. J. 21,* 880-85 (Dec. 1951).

A method is described for isolating the lumen contents of the cotton fiber by digestion of the cellulose in chilled 72% sulfuric acid. Microscopical observations on the isolated "lumens" as well as the lumen in the whole fiber are reported. The isolated lumens appeared tubular in shape, and electron micrographs of thin sheets of the membrane material showed an unoriented, granular structure.

The lumen residue isolated by sulfuric acid was found to be completely hydrolyzed by 1% sodium hydroxide, but only partly hydrolyzed in dilute mineral acid. Amino acid determination by paper chromatography disclosed no free amino aspartic acids, valine, alanine, and probably se-

rine and arginine were found, in addition to several unidentified amino acids.

Mills must prepare for cotton mechanization

Anon. *America's Textile Reptr. 65,* 14-17 (Nov. 29, 1951).

In a survey of the cotton belt by a group of textile editors, guests of the National Cotton Council, and by the annual Belt-wide Mechanization Conference, the need to mechanize cotton production due to smaller labor supplies, growing competition among fibers, and higher harvesting costs was stressed. The advantages of mechanical harvesting, mechanization in the South, etc. are discussed.

Some observations on the constitution of the primary wall of the cotton fiber.

Verne W. Tripp, Anna T. Moore & Mary L. Rollins. *Tex. Research J. 21,* 886-94 (Dec. 1951).

The primary wall of fully matured cotton fibers has been isolated and its morphology and composition studied by electron microscopic examination and by chemical analyses. The primary wall appears to contain about 50% cellulose; protein, wax, and pectic substances occur in lesser amounts; cutin or suberin and mineral matter are also present. The concentration of noncellulosic substances in the primary wall is much greater than in the whole fiber.

Electron microscopic examination of the primary wall indicates that it consists of a network of cellulose fibrils, having diameters of 100-400 A., surrounded by the noncellulosic constituents. The oriented fibrillar systems observed with the polarizing microscope have not been seen in the electron micrographs of the specimens studied. There is an apparent increase in the diameter of the fibrils of the primary wall and in the denseness of the network as the fiber matures. The existence of layers in the cellulose network has been observed.

Studies on the mechanical properties of cellulose fibers

Frode Andersen. *Contr. Danish Inst. Textile Res.* No. 13, 75 pages (1950).

This treatise incorporates (1) discussion of the structure of cellulose fibers and how the magnitude of the elastic constants is dependent on it, (2) various methods of testing stretch, (3) the use of a method which measures very accurately the static and dynamic moduli on single fibers, the reversibility of the stretching

phenomenon, and the relaxation of tension at constant length of fiber (the apparatus used is electrical and based on the condenser microphone principle), and (4) results and discussion given at length.

Artificial fibers A 2

Animal protein synthetic has wool-like composition

Anon. *Textile World 101,* 116 (Nov. 1951).

A new synthetic fiber, Merinova, is being produced from an animal-protein base by Snia Viscosa of Italy. The chemical composition is said to be almost identical with that of wool.

Some properties given by the manufacture for the fiber are:

Elongation:
Dry: 50%
Wet: 60%

Resistance to acids:
Retains softness after boiling in 4% sulphuric acid Can be carbonated.

Best results are obtained when Merinova is blended with other fibers. No difficulties are said to arise in spinning on cotton, woolen, or worsted machinery.

The fiber will not felt, but is said to assist felting when blended with wool.

Merinova can be bleached white like wool, preferably by using peroxide and Blankit I, a General Dyestuff Corp., product. The fiber can be dyed with all wool dyestuffs and with a few direct colors. In blends with cellulosic fibers or nylon, cross-dyed effects can be obtained. Merinova-blended fabrics can be treated with resin finishes.

Sizes being produced at present are 3 and 5 den., 1 9/16, 2 3/4, and 4 in. U. S. agent is John J. Ryan, 25 Broad St., New York.

Dynel shows high resistance to chemicals in tests

Anon. *Textile World 101,* 127 (Dec. 1951).

High resistance to a wide variety of acids, alkalis, salts, amines, and bleaches was shown by 100% dynel fabrics tested recently by Better Fabrics Testing Bureau, Inc., New York, N. Y. Dynel is the man-made acrylic staple fiber developed by Union Carbide and Carbon Corp. (Chart shows resistance to various chemicals).

Fiber structure and pulp properties

Wm. H. Algar, Hans W. Giertz & Anne-Marie Gustafsson. *Svensk Papperstidning 54,* 335-

44 (May 1951) ; *in Swedish.*

A modified Nickerson hydrolysis method has been used to determine the "easily accessible" cellulose contents of a wide range of cellulosic materials. The amount of "easily accessible" cellulose varies over quite a large interval for the materials investigated while the rate constant for the the dissolution of the difficulty accessible portions is constant for all pulps from a given wood, and varies only slightly for different woods. The rate constant increases when the cellulose sample is subjected to mechanical treatment such as dry disintegration. Good linear correlation has been found between Nickerson "easily accessible" cellulose and gamma cellulose for a range of sulfite and sulfate pulps. It is assumed that these two determinations measure essentially the same constituent in wood pulps.

Fiber structure and pulp properties

Wm. Algar & Hans W. Giertz. *Svensk Papperstidning 54,* 693-700 (Oct. 1951) ; *in English.*

Experiments are presented which were performed in an attempt to systematically classify the behavior of some different fibers towards ultrasonic treatment. In general this behavior parallels that of normal technical beating. Photomicrographs are included from which it is evident that those fibers which have a high semi-cellulose content, especially holocellulose, swell to more than their ordinary water-swollen condition on ultrasonic treatment.

Future of P.V.C. fiber

B. Holdsworth. *Dyer 106,* 173 (Aug. 10, 1951).

Research on Thermovyl has resulted in the belief that this fiber is particularly suited to furnishing fabrics such as upholstery and curtains. It can be blended with other fibers, natural or synthetic, or can be used alone, and it also can be used, as other polyvinyl chloride fibers, in filters, protective clothing, etc. P.V.C. fabrics are almost perfectly crease-resisting and do not need tentering. The fabrics made from staple yarns can be raised and subjected to many fancy finishes, and since P.V.C. is a thermoplastic, hot-pressed designs can also be applied. Results of experiments with Thermovyl are further discussed, and some interesting aspects of other P.V.C. fibers are reviewed.

Identification of textile materials

Anon. *J. of Textile Inst. 42,* S25-115 (Oct. 1951).

Brief notes have been compiled on the various types of fibers that draw attention to the characteristics of the fibers which are important in their identification. To provide a basis for analysis when a microscope is not available a scheme based on burning, solubility, staining and flotation tests has been worked out and is presented in a table, as is the general procedure for a microscopical examination. Besides this information in these analytical tables further help is provided by the summary of confirmatory tests and behavior contained in an aditional table. Guidance in the interpretation of the microscopical observations is provided by photomicrographs of cross-sections and entire fibers. Copies of this article are not obtainable but the journal is available for loan.

Newer synthetics dominate AATCC convention exhibit

Anon. *Textile World 101,* 133-35, 216, 218, 220, 222, 224 (Dec. 1951).

Visible evidence that the problems of dyeing the newer synthetic fibers are under severe attack and that considerable success has already been attained was dominant in the exhibits at the recent AATCC annual convention in New York. Practically every display booth showed new dyes, new dyeing processes, or new chemicals for processing Acrilan, Dacron, dynel, Orlon, Vicara, and nylon. New fabrics for expanded usage of rayon and acetate, and a wide range of mixed fabrics were also shown. New instruments such as the Brush ITT Uniformity Analyzer were shown.

Two fibers often better than one

Jesse F. Yeates, Jr. *Rayon & Syn. Tex. 32,* 64-5 (Sept. 1951).

Fabrics with extra advantages can be produced by blending fibers so that they supplement and complement each other. An example of this fact may be found in Vicara-wool blends where Vicara improves the wrinkle recovery, crease resistance, and shrink resistance of the blend and adds luxurious cashmere-like softness. Vicara is also used to good advantage in blends with nylon, rayon, cotton, and dynel. Vicara, which is easy to spin, weave, and dye and is being processed on the American, cotton, woolen, and worsted systems, has a unique combination of properties making it a versatile fiber for blends.

It can be mercerized in blends with cotton, carbonized in blends with wool, and dyed in almost any shade. Vicara is available as either a bright or dull fiber in a variety of deniers, thus widening its application in blends.

"Wonder fibers . . . a challenge to management
J. Spencer Love. *Textile World 101,* 136-7, 238, 240, 242 (Dec. 1951).

This article describes the evolution of man-made fibers, the possible scope of the newer fibers, how the textile industry can best use them, and some statistics on Burlington Mills program. Highlights of the latter is that Burlington spends $4,000,000 in 1951 on research, experimentation and quality control.

Yarn production B

Fiber preparation B 1

Blending of cotton by fineness determination
Walter Regnery (Paper presented before the Textile Research Institute, 22nd Annual Meeting).

See front section.

Control Waste of Picker room
Anon. *Am. Wool Cotton Reptr. 65,* 9, 44 (Oct. 25, 1951).

The installation of electric feed controls for more accurate regulation of the blending of recoverable soft waste will result in more profitable mill operation. A controlled percentage of waste is obtained by regulating the feed of both the new stock in the opening line and the reworked stock from the waste feeder. A rake, electrically connected at the delivery of the condenser feeding the distributor, operates a switch which stops the waste feeder when the flow of new stock stops. Thus, safe percentages of waste, properly blended, are obtained.

Extra cleaning for mechanically harvested or low grade cotton can be obtained by newly developed grid bars. These bars, four or less, fit under each beater of the picker in place of the conventional bars and may be adjusted individually as well as an entire unit. They are specifically designed for better and more thorough waste removal without damage to the fibers.

Cotton opener developed for air-free cleaning
Anon. *Textile World 101,* 114 (Nov. 1951).

An air-free cleaner that uses mechanical and centrifugal force to open and clean cotton on other fibers has been announced by Thornbury Machine

Works, Inc., P. O. Box 185, Dallas, N. C. Revolving beaters open and pass the stock over 225 vibrating, adjustable, non-choke grid bars. Centrifugal force and gravity open the stock and remove motes, sand, dust, leaf, fly, and other foreign matter.

Specifications of the cleaner are: width, 52 in.; length, 9 ft., 4 in.; height, 8 ft., 5 in.; weight, about 2,000 lb.

Discussion on removing trash from cotton.
Staff. *Textile Industries 115,* 175, 177 (Oct. 1951).

In answer to a reader's inquiry on removing trash from cotton, suggestions for using an oil spray and for changes in opening, picking, and carding speeds and settings are discussed.

How Pepperell blends cotton by fiber fineness
Anon. *Textile World 101,* 108-9 (Dec. 1951).

See front section.

Mechanical cotton blender for testing laboratories
Anon. *Textile World, 101,* 154 (Dec. 1951).

Effective blending of cotton samples is said to be assured with a new machine developed by the Cotton Branch, Production and Marketing Administration, U. S. Dept. of Agriculture, Washington 25, D. C. The blender was designed to handle a 10-g. sample, and the new method takes about an hour to make four samples. Hand Methods take about ten times as long.

Saco-Lowell developing new-type cotton opener
Anon. *Textile World 101,* 112 (Nov. 1951).

A new type of cotton opener, designed to beat out heavy impurities and to flat out light impurities, is under development by Saco-Lowell Shops, 60 Batterymarch St., Boston, 10, Mass. Called the Trash Ejector, the machine uses four special beaters, one above the other. An adjustable cutoff is placed between each beater and between the inlet and the outlet.

The beaters have grids 45° above and 45° below the center. Dust bins are located on each side of the grids. Angle plates set close to the grids break up air current and cause the dirt thrown out by the grids to fall away.

Beaters consist of six flat, radial blades. The blade is 3 in. deep on the retreating side.

Sheets of steel fill in between the blades to make the cylinder totally enclosed.

The trash ejector is to be fed through a No. 11 condenser that throws cotton into directly the inlet at the top of the machine.

Laps made on the new machine are said to

show a decided change in color because more dust is removed. With the narrow, flat blades used in the trash ejector, there is said to be no tendency toward fiber curling.

Selection of picker laps for tests on a lap meter

Anon. *Textile Industries 115,* 214 (Nov. 1951)

Random tests should be made when the kind of laps that are going to the card room is being determined; but in determining how a particular picker is functioning selection of picker laps is advised. For normal testing to obtain a record of picker performance, tests should be made on laps which weigh inside the allowable tolerance; and to get a true picture any lap in which an adjustment has been made should be discarded. Another solution suggested for obtaining a true picture consists of holding the picker until the lap selected has been weighed, and then if an adjustment is necessary; allowing the stock to run waste on the floor until sufficient yardage has been run to get all the previous heavy or light weight stock out of the machine. The knock-off gears can then be reset and the stock wound around the lap pin and a new lap made.

Wool stock handling mechanized

Staff. *Textile Industries 115,* 130-1 (Nov. 1951).

A mechanized system of handling wool raw raw stock from scouring to the card room at a southern woolen mill takes the scoured wool from a scouring train by conveyor belt and delivers it to a dryer hopper which feeds the dryer. Dried stock is then fed to another conveyor at the end of the dryer, and a fan picks up the stock and dumps it into an 8,000 lb. storage bin. Some scoured stock is baled, and that stock for immediate use is taken in "sheets" to the dyehouse kettles. Dyed stock is taken by overhead hoists from the kettles, delivered to the dryer by a feeder hopper, and then delivered on a conveyor belt to a fan which carries it to a duster. From there the wool is blown through an overhead pipe to large picked hoppers in the picker room. From the picking room 3 fans deliver the wool stock through pipes to the card room where it is stored in bins.

Two mixing hoppers, each of 10,000 lb. capacity, are used in the picker room for oiling and blending the stock. A fan draws the stock from the first picker to the second hopper where a belt conveyor distributes the stock evenly for better blending prior to delivery to the second picker.

A catwalk and guard rails around the hopper provide safe access to all parts of the blending equipment.

Carding and combing B 2

Automatic length controller

Anon. *Dyer 106,* 329 (Sept. 7, 1951).

The Excelsior Controller, developed by Thomas Walker & Son, Ltd., can be used in all textile processes which call for delivery of the finished product to a given length. Applications include carding engines, draw frames and flyer frames, and in the carpet industry in yarn winding, combined sizing and beaming, and automatic repeat runs of finished products. The basis for control is the number of revolutions of a roller or drum which is in direct contact with the material being processed and which is expressed as length. Percentage error due to slip is said to be usually very small, and alteration in length due to twist or stretch between the roller and final package can be allowed for.

Helpful comments on nep control

Staff. *Textile Industries 115,* 167, 169 (Oct. 1951).

The experience of one mill in working on nep control indicates that the type of cotton run definitely affects the nep count. In the opening and picking processes, excessive beater speeds, improperly regulated air currents, nicked rough castings, beater blades, pins, nuts, and screws all contribute to nep formation. Cards have been found to be among the worst offenders in forming neps, and the grinding and setting of the cards has a definite effect on the nep count. A schedule of counting neps on the day following grinding has been adopted, using a nep counting template developed by North Carolina State College. This template is believed to be more accurate and faster than methods. The process used in counting neps is described.

If card-room waste is too high . . .

E. H. Helliwell. *Textile World 101,* 128-29 Dec. 1951).

You can reduce it by a well-run waste-control program that includes: setting standards for maximum waste; weighing and recording all waste daily; and charting the waste score card weekly.

It was found in one mill that with suitable waste records, proper instructions, and a faithful

follow-up, control of waste could be maintained close to the established standards.

Repair replacement for card coiler gears

Staff. *Textile Industries 115,* 243 (Nov. 1951).

In the coiler of a card, the 18-24 tooth calender roll shaft gear is a compound gear in which the beveled 18-tooth gear wears out first, leaving the 24-tooth gear as good as it ever was. Savings in cost and critical material can be effected by sawing off the 18-tooth gear and replacing it by one made by a gear company or machine shop. The new gear may be fastened to the 24-tooth gear shaft by a set screw and should be made a fraction of an inch shorter in the hub so there will be space to set the beveled gear to the gear on the upright shaft.

Strip-O-Matic clothing now made for cotton and fine wool

Anon. *Textile World 101,* 153 (Dec. 1951).

See front section.

Tips for woolen and worsted mills from the editors' notebooks

Staff. *Textile Industries 115,* 129 (Oct. 1951).

Suggestions for carders include: the dressing of tape leather with neat's-foot oil, using a spray gun, to counter-act tape deterioration from self-scouring wool oils; the use of coarser wire, more open set, higher fancy speed for processing 100% nylon stock on wool card; the use of grids set 24 gauge to cylinder and doffers and cleaned every 3 months or oftener to reduce waste in the card room.

Tips for running Vicara on the cards are: spools wound soft; aprons set farther from tapes than in the case of wool; normal card room humidity; emulsion is 1 part oil, 3 parts water, applied 22% by weight of wool; run with or without Peraltas; slow comb if fiber clings to comb blade; use french chalk to prevent stock winding around bottom dividing roll.

Drafting and Roving B 3

Profits from effective textile machinery lubrication

F. S. Jones. *Textile Industries 115,* 151, 153 (Oct. 1951).

Proper lubrication of roving frames promotes smooth, efficient and dependable operation with reduced wear, lower maintenance, less spotting of

finished rovings, and greater production of finished yarns. The lubrication of roving frames is discussed under the following headings: drafting rolls; flyer spindles; spindle and bobbin shafts; cone shafts; gear compounds; carriage trucks and counterweight sheaves; main shaft; open gears, chains; anti-friction bearings; and centralized oiling systems.

Spinning B 4

ASME speakers discuss pot spinning, Pacific Converter

Anon. *America's Textile Reptr. 65,* 15, 17 (Nov. 15, 1951).

A report on two speeches made at a recent meeting of the textile division of the American Society of Mechanical Engineers is given. The performance and operation of the Pacific Converter, as discussed by Robert Wilkie, are described; and the operation, advantages, and performance of the McCann 100 pot spinning frame, as discussed by John J. McCann, are reviewed.

Bunch building mechanism for spinning or winding machines

Wm. H. Buckner (to Talladega Foundry & Machine Co.) USP 2,574,015, Nov. 6, 1951.

A new bunch builder uses a buncher disk carried on the same shaft with the builder cam and a buncher guide operated by a spring. When the guide is engaged with the disk, it retains the builder arm in a depressed condition and renders it inoperative in regard to the main builder cam of the machine.

Elimination of rubber waste in Bradford-spun worsteds

Staff. *Textile Industries 115,* 245 (Nov. 1951).

"Rubber waste", which occurs in the Bradford system drawing and spinning and which is made by the machines themselves, appears usually as tapering, thick slubs up to 2 inches in length, generally dirty and oily, and occurring in batches over several yards of spun yarn. Fibers comprising rubber waste are trapped and collected by felt covered wooden blocks, termed "rubbers", which fit under and press against the low front rolls of Bradford drawing, finishing, and roving boxes. To eliminate this trouble a small felt or velvet covered roll can be fitted in frictional contact with the low front roll. Wooden carriers or tumblers turned down to $\frac{7}{8}$″ are used with the felt glued to the surface. $\frac{1}{8}$″ bent wire holds these felt rolls about 1″ to $1\frac{1}{2}$″ above the rub-

bers, where they rotate in contact with the low front roll and pick up any longer fibers protruding or tending to slip from the accumulating rubber waste, thus preventing the waste from getting in the slubbing.

Nylon-bearing rolls eliminate lubrication

Anon. *Textile World 101,* 162 (Dec. 1951).

"Cleandraft" nylon-bearing top rolls that need no lubrication are a new product of Industrial Plastics, Inc., 21 Vernon St., Whitman, Mass. This roll is designed for back and middle lines of cotton spinning and is produced by a new method that integrally molds nylon at ends and center to contact cap bars and saddles. As a result, these rolls give the anti-friction advantages of nylon, without any special installation requirements, simply by replacing standard steel shafted rolls with the "Cleandraft".

Process and machine for converting textile filaments

Norman E. Klein (to Deering Milliken Research Trust) USP 2,573,717, Nov 6, 1951.

The process of converting tow to yarn which comprises doubling and twisting ends of tow while subjecting the ends to tension sufficient to stretch break the tow and draft the broken filaments thereof.

Synthetic traveler and ring

Hugh D. Daley (to American Viscose Corp.) USP 2,572,140, Oct. 23, 1951.

See front section.

The McCann 100-pot spinning frame

John J. McCann. *Textile World 101,* 110-11 (Dec. 1951).

The first performance report on the new 100-pot McCann pot-spinning frame installed at Abbott Worsted Co. was given at the recent meeting of the Textile Section, ASME, in Boston.

The 100-pot spinning frame operates at 10,500 rpm. So far we have only run worsted yarn on it. However, on a similar sample frame that we use for experimentation, we have run at 11,500 rpm. Such widely diversified yarns as worsted, jute, nylon, Orlon, dynel have been spun. By disconnecting the drafting and using only front rolls we have inserted twist in paper, continuous-filament rayon, and from a woolen-system roving in woolen, dynel, asbestos, paper, cotton waste and blended yarns. Using a cotton-drafting system we have spun staple rayon and cotton.

The counts on the above yarns have varied from 4s to 80s, and the twist from 1½ turns to

27. The packages produced on the frame are under the 1¼-lb. maximum capacity of the pot, and weigh about 1 lb.

Our tests on the McCann system have shown that it is easy to maintain a reasonably correct count, and that the twist is very uniform. We have made many tests on the yarns for evenness and find that pot spun yarns are at least as even as those from other systems.

Twister frame spindle support

Albert E. Winslow (to J. P. Stevens & Co. Inc.) USP 2,573,081, Oct. 30, 1951).

In a twister of that type having a frame, spool-carrying spindles with whorls, a support for each spindle in which the spindle is journaled, a driving belt extending alongside the whorls, and in which the support at its upper end is hinged on the frame and moved by gravity to position the whorl into driving engagement with the belt and is movable to position the support with the whorl away from the belt for doffing, the provision of parallel upper and lower spaced based members on the support and vertically alined bearing members in the base members for the spindle and whorl with the whorl located between the base members.

We cut yarn variation by more than 25%

Ed Blackwood. *Textile World 101,* 126 (Dec. 1951).

See front section.

Whitin American system

Carl D. Brandt. *Am. Wool Cotton Reptr. 65,* 10, 28 (Oct. 25, 1951).

In a talk before the American Society of Mechanical Engineers, it is noted that the Whitin American system will handle both natural and synthetic staples in most any combination not exceeding 7 inches in length. The main difference in this new system if the use of aprons, as a controlling element during drafting, which gives more regular fiber movement and more uniform products. The recommended installation for the first operations of the complete system includes pin drafters or gills since pin drafters give more efficient blending and improved sliver quality. Some suggestions for satisfactory operation of the system are discussed.

Winding and spooling B 5

Automatic stop gauge for winding machines

Charles W. Guion. USP 2,572,854, Oct. 30, 1951.

In a winding machine including a plurality of

spool holders and means for rotating a spool mounted thereon, electric circuits including electrically-operated means for causing the discontinuance of the winding operations, a shaft mounted for adjustment about its axis, electric switches in the circuits, the switches being fixed to the shaft and disposed adjacent the spool holders.

New automatic hosiery cop winding

Anon. *Am. Wool Cotton Reptr. 65*, 62 (Oct. 18, 1951).

The new Foster-Muschamp Autofill hosiery cop winder produces 4 perfect cops at one operation, is completely automatic, and is compact and simple to maintain. Diameter control is mechanical with no builder wheel in contact with the yarn to cause broken filaments, and construct spindle speed up to 6,000 rpm is possible. Mfr: Foster Machine Co.

Supplying yarn

Edward J. Abbott (to Abbott Worsted Mills Inc.) USP 2,574,455, Nov. 13, 1951.

Apparatus for unwinding a package of yarn comprising a support having perforated wall with which a surface of the package is engaged, means for rotating the support, means for drawing yarn from a surface of the package which is not in contact with the support to diminish the package toward the wall thereof during rotation, and means for establishing a differential air pressure, with the lower pressure existing at the side of the wall which is not in contact with the package and with the higher pressure at the surface from which yarn is withdrawn.

Whitin twister processes continuous filament yarns

Anon. *America's Textile Reptr. 65*, 11-12, 42 (Nov. 1, 1951).

The Model CA twister, manufactured by the Whitin Machine Works, is particularly suited for processing continuous filament synthetic yarns with low twist. It has a rigid frame construction, precision-made parts, anti-friction bearings, and many patented features. The new unit is reported to produce high quality yarns with minimum tension at high productive speeds, and it can be manufactured to accommodate various ring sizes with provision for traverses of 8, 9, or 10 inches. It also can be made to build 2, 3, or 4-pound packages with spindle speeds ranging from 5,000 to 8,000 rpm. Features of the new twister are discussed.

Yarn Testing and Numbering B 10

Effect of fatigue test on tire cords

James N. Grant, G. M. Couturier & Mary W. Rhodes. *Textile Res. J. 21*, 867-75 (Dec. 1951).

Changes in the mechanical properties of cords subjected to dynamic fatigue are measured for cotton, mercerized cotton, and rayon tire cords. These datas were obtained by the use of an instrument which subjected the cords under tension to localized dynamic forces under controlled atmospheric conditions. Flex life and ultimate elongation were found to be cumulative, regardless of whether the cords were fatigued continuously or were allowed to relax with or without static tension between periods of flexing.

Extension and shrinkage of polyamide rayon in aqueous-phenolic solutions

A. B. Pakshver, E. K. Mankash & A. I. Kukonkova. *Tekstil Prom. 11*, 15-16 (June 1951).

Determinations are made of the change in length of polyamide yarns on immersing in aqueous phenol (2-4.5%). Undrawn yarns, yarns with 50-200% draft, and fully drawn yarn are examined. As the draft increase the ultimate extension on immersion diminishes, becoming negative for yarn drawn more than 150%; at the same time, the rate at which the equilibrium length is attained is reduced. It is reduced also in the undrawn yarns by long storage, and in the fully drawn yarn by setting.

Measurement and physical interpretation of the mechanical strength of filaments

Waller George. *Textile Res. J. 21*, 847-61 (Dec. 1951).

A discussion of mechanical strength is presented in which the similarities among fiber-forming materials are stressed. It is suggested that many of the macro mechanical properties of filamentous solids can be related in a remarkably simple way to the geometric and dynamic properties of micro domains existing within the filaments. Micro domains are characterized by elements of length which are largely compared with the interatomic distances within the solid, but probably are quite small compared with the cross-sectional dimensions of the filament.

Uster introduces three testers

Anon. *America's Textile Reptr. 65*, 53 (Nov. 15, 1951).

Three new testers have been announced re-

cently by the Uster Corp. of Charlotte, N. C. The uster filament tester measures the unevenness of filament materials of zero or low twist at speeds up to 100 yards per minute, high twist filament materials, and spun materials between 10 and 10,000 denier.

The new Universal evenness tester with linear and quadratic integrator tests cotton, wool, synthetics, blends, and other spun materials at runs up to 100 yards per minute and is said to automatically calculate the coefficient of variation while the test is being run. The unit is extremely stable and is equipped with a new response recorder.

The third unit is completely automatic yarn strength tester which eliminates the human element. Features that this tester indicate include: individual values of breaking strength and of elongation; sum of breaking strength and elongation; frequency distribution of breaking strength; number of tests carried out.

FABRIC PRODUCTION C

Yarn Preparation C 1

Automatic regulation of "take-up"

E. H. Jones, S. A. Shorter, Brit. Cotton Industry Research Assoc. Brit. P. 654,178. *Dyer 106*, 175-6 (Aug. 10, 1951).

Machinery for continuous yarn sizing, fabric dyeing and other processes is claimed in which the weight of the components of the fluid retained by unit length of the material is regulated so that it is substantially constant in spite of uncontrolled variations in the nature of the material, the properties of the fluid and the characteristics of the mechanism used for the application of the fluid. The amount of those components required to be retained is supplied to a reservoir in some suitable fluid form while a unit length of material is passing, and any departure from the correct rate of acceptance of substance by the material is detected by any corresponding change in weight or volume of liquid in the reservoir. An example of a warp sizing machine is given to illustrate the invention.

Builder for fine yarn warp frames

Staff. *Textile Industries 115*, 173, 175 (Oct. 1951).

A method for building warp yarn which prevents unwound yarn from being soiled is described. During unwinding, exposed surface of

yarn is continually unwound. The only change required is to change the worm and rack from left hand to right hand thread and to locate a stop at the left end of the rack so that the operator can't unscrew the rack completely off the worm when bringing the rack back to start.

Discussion: size formula for rayon-cotton blends

Staff. *Textile Industries 115*, 165, 167 (Oct. 1951).

In answer to a reader's inquiry on the type of size to use in slashing a blend of one-third viscose staple and two-thirds combed cotton, the use of a cut staple size is recommended so as to relieve the problem of desizing and subsequent finishing. One contributor recommends the conventional British type corn gums or the new slow-congealing corn starch ether gums used with a rayon sizing wax. Another contributor recommends using the British type corn gums for sizing and the emulsion type of high melting point and saponifiable fats for warp lubrication. The same loom settings and humidity conditions used for 127 x 68 combed cotton broadcloth is said to be suitable for weaving the blend.

Methods and maintenance feature Southern textile parley

Anon. *America's Textile Reptr. 65*, 12-13, 45 (Nov. 29, 1951).

Problems of winding, slashing, and weaving cotton, as discussed at the fall meeting of the Eastern Carolina Division of the Southern Textile Association, are summarized. Topics include cleaning for better results; improved starch storage; time-saving attachments; checking bad warps; care of shuttles; covering, applying, and care of binders; etc.

Viscosity of homogenized size measured

Anon. *Textile World 101*, 162 (Dec. 1951).

A measuring and recording viscometer designed for use with homogenizers preparing warp size has been developed by Norcross Corp. 247 Newtonville Ave., Newton 58, Mass. The instrument measures viscosity of size as it is delivered from the homogenizer, and indicates variations in size—often appreciable in different shipments.

Viscometer for homogenizer use

Anon. *America's Textile Reptr. 65*, 130 (Nov. 22, 1951).

A viscometer for use with homogenizers preparing warp sizing, manufactured by Norcross Corp., has a measuring element, easily installed, to measure the viscosity of the size as it is de-

livered from the homogenizer. The recorder of the unit is located where adjustments can be readily made in the homogenizer pressure so as to maintain the correct viscosity.

Weaving C 2

Carpet-Inspecting tables eliminate handling

Anon. *Textile World 101,* 159 (Dec. 1951).

Power-driven inspection and mending tables for carpet have recently been developed by Edward J. McBride Co., Inc., Philadelphia, Pa. These tables place the work directly in front of the operator and eliminate the problem of individual handling of a carpet during inspection with resultant saving in fatigue of the operator. The direct time saving made possible by this unit is 50%, according to reports from the first installations that were made. In subsequent installations it is anticipated the greater savings can be accomplished where plant conditions permit more thorough use of the mechanized materials-handling features included in the McBride design.

Catch cord tension for Jacquards

Staff. *Textile Industries, 115,* 247 (Nov. 1951).

A method of controlling the independent tension on the catchcord as it is taken off a beam and of thereby overcoming any tension of the filling caused by slackness in the weave consists in passing the catchcord through a loop to which is attached a weight. The weight should hang under the warp, and the amount of weight should depend on the number of ends in the catch cord after one or two pieces have been woven and as the weight descends to the floor. A straight selvedge with no filling or end breaks due to slack selvedge should result.

Let-off motion eliminates weights behind loom

Anon. *Textile World, 101,* 121 (Nov. 1951).

A let-off motion that uses compression springs instead of weights to produce and regulate warp tension has been announced by Platt Bros. Ltd., Oldham, England.

More even tension and easier adjustment are two advantages claimed for the device, called the Richmond let-off motion.

Foot pressure on a pedal is all that's needed to release the tension when the beam has to be rotated.

Fancy weaving plant uses odd yarns in selvage

Henry E. Goforth. *Textile World 101,* 120

(Dec. 1951).

A fancy-goods mill can throw away profits if it sells its left-over yarns of a color that has been discontinued. Usually these yarns bring only a fraction of the cost put into them, and the records you have to keep on them take up valuable time.

We try to keep these yarns down to an absolute minimum by close coordination between the mill and the styling department (at Seaboard Mills, U.S. Rubber Co.). We at the mill point out whenever a new color or yarn is added for one pattern or order so that the styling department can try to use it in an economical volume.

In addition, we make stock lists periodically to note how much each color is used during a season.

In spite of our precautions, we always have small lots of varying amounts and colors. We use up practically all of these odd lots of yarn as selvage markers.

We note on each order the yarn that was used as the selvage marker in that slashing. Thus, we have a permanent record of the time the fabric was slashed and woven and on what looms.

Handling — ten ways better at the Livingston Worsted Mills, Inc.

James H. Kennedy. *Textile World 101,* 122-25, 246 (Dec. 1951).

Better loom layout was made possible by overhead monorail. Warp changing time was cut 75%. One handling was completely eliminated in dyehouse. Improved cloth truck holds twice as much.

Long dobby chains eliminated with new attachment

Anon. *Textile World 101,* 120 (Nov. 1951).

A new dobby attachment that controls the motion of the pattern-chain cylinder and permits shortening of the pattern chain for complicated cloth designs has been developed (patent pending) by Ivey Morris, N. C. Vocational Textile School, Belmont, N. C. In many cases, a short chain of less than thirty bars can be used to replace a chain of several hundred bars.

The device consists of a cam ratchet and levers that control the motion of the pattern-chain cylinder. The cylinder can be rotated in forward or intermittent motion, oscillated, or stopped in convenient sequence to produce a complicated long pattern in the cloth with very few bars. The attachment can be used on all dobby heads and will not interfere with other motions on the loom.

Loop cutter for multiple shuttle looms

Henry E. Littlejohn (to J. P. Stevens & Co. Inc.) USP 2,573,034, Oct. 30, 1951.

A selvage cutter designed to be affixed to the front of a temple comprising a body member in the form of a vertical plate having a downwardly facing thread directing edge sloping downwardly and outwardly and terminating in a reversely turned edge, which edges at their junction together form an apex, a cutting element fixed with respect to the body with a free portion extending substantially horizontally outwardly to a point beyond the apex and crossing the thread directing edge and spaced closely therefrom, the distance between the element and thread directing edge being at a minimum at a position near the lower limit of the directing edge, the cutting element being spaced from the reversely turned edge, whereby the thread of a shuttle out of action may be guided downwardly along the directing edge to reach the apex and in so doing pass below the end of the cutting element.

Method of weaving loop pile fabrics

Francis P. Groat (to The Magee Carpet Co.) USP 2,573,841, Nov. 6, 1951.

The method of weaving a pile fabric having a backing and a plurality of pile warps woven in the backing which comprises raising portions of the pile warps to form alternate weftwise rows of loops of varying height and intermediate weftwise rows of loops of uniform height, converting the loops in alternate rows to loop of a uniform height increasing the height of loops in intermediate rows while reducing the height of loops in a proceeding alternate row and converting the loops intermediate rows to loops of varying height.

New light on Southern mills

Anon. *Textile World 101,* 106-7 (Dec. 1951).

New lighting installations in Southern mills show these characteristics: (1) Nearly all continuous-row flourescents; (2) a trend to cool-white lamps because cool-whites have higher lumen output and more pleasing color than daylight tubes; (3) foot candles at working level are going higher, for example from 17 to 54 at Judson Mills' weave room.

Shuttleless loom

Anon. *Fibres, 12,* 173 (May 1951).

See front section.

Warp beam lifting mechanism

Edward A. Kiessling, Francis G. Lake & Frederik Stephensen (to Steel and Alloy Tank Co.) USP 2,575,451, Nov. 20, 1951.

In a loom having a warp beam with a beam head at each end, and a bearing for each end of the warp beam, the combination comprising a pair of fixed brackets, a pair of tracks pivotally secured to the brackets respectively and located below the beam heads respectively, each of the tracks and the corresponding bracket conjointly defiing a substantially continuous supporting surface for the corresponding beam head, and means for moving the tracks about their pivotal supports towards and away from supporting position with respect to the beam heads and for moving thereby the warp beam in and out of axially aligned position with respect to the bearings.

Knitting C 3

Circular knitting machine

Paul L. Thurston (to Interwoven Stocking Co.) USP 2,573,118, Oct. 30, 1951.

In a circular knitting machine having coaxial superposed needle cylinders, double ended needles operable selectively in either cylinder, means for feeding thread to the needles and means for actuating the needles to take and knit the thread, a carrier disposed inside of and rotatable with the upper needle cylinder, a plurality of thread feeding fingers movably carried by the carrier, each of the fingers having a shank portion and pair of resilient arms projecting laterally from the shank, each having at its outer end a downwardly projecting tip portion provided with a thread guiding eye and inclined at an angle to the arm, the direction of inclination of one of the tip portions being opposite to that of the other and means for bringing one or the other of the eyes into wrapping relation with selected needles.

Jig for bending back-pickers

Ernest Bridges. *Textile Industries 115,* 131 (Nov. 1951).

Since few new pickers for circular hosiery machines are of correct picking height when first installed, they must be bent up or down to obtain the proper setting. A jig, designed to simplify the job of bending pickers and which can be made in the machine shop, consists of a piece of ¾" square cold rolled steel bar, two inches long, with a 13/32" x 3/8" slot in the center. Four holes are drilled and tapped for 10/32" x ½"

square square head hardened set screws, and a hole is drilled in the center of the slot for a pivot pin. Two of the set screws serve as a stop, and the other two screws are used to bend the picker up or down. A small wrench can be used to do the job while standing near the machine.

Knitting show

Geo. A. Urlaub. *Rayon & Syn. Tex. 32*, 45-7, 49-50 (Sept. 1951).

Details of some of the machinery developments and new processing ideas shown at the Knitting Arts Exhibition are presented.

Nail polish found useful in knitting applications

Staff. *Textile Industries 115*, BDE, 247 (Nov. 1951).

A contributor suggests the use of nail polish in marking things in the knitting room since the marks may be easily removed by acetone. Suggestions include the marking of pattern wheel starts by making a mark on one sinder or needle butt; identifying defective needles or sinkers found in places other than near the removal door; fabric identification marks; stopping runs in filament fabrics such as those produced on Wildman spring needle jersey knit machines; the marking of gears and other parts by fixers in taking down a machine; and in testing stitch length for marking yarns.

Needle actuating mechanism for circular knitting machines

Rudolph E. Zeruneith. USP 2,573,782, Nov. 6, 1951.

In a circular knitting machine of the type having a rotary cam ring and a movable cam associated therewith, means adapted to move the cam comprising a cylindrically shaped member rotatably journalled on the cam ring for actuating the cam, the member having an eccentric pin extending longitudinally from one end and a pair of diametrically spaced eccentric pins extending longitudinally from the opposite end thereof, the latter pair of pins being spaced equidistantly to either side of the longitudinal axis of the member.

Polishing tools

Ernest Bridges. *Textile Industries 115*, 161, 163 (Oct. 1951).

Circular hosiery machine fixers should have a full set of tools for repolishing various parts of hosiery machines since a good job depends a lot on the kind of tools used. Emery cloth, crocus

cloth, and emery cord are suitable for many of the jobs; and carborundum sticks in various shapes and sizes are especially useful for such things as removing sharp edges from yarn feeding devices, etc. Arkansas hard stones in various sizes are also necessary equipment and are useful for removing sharp edges and burrs on numerous parts of knitting machines, such as ground down picks, etc. Electrically driven hand grinding and polishing tools, which are now on the market, also have been found suitable for today's complicated machines.

Reiner introduces new tricot model

Anon. *Am. Wool Cotton Reptr. 65*, 13 (Oct. 25, 1951).

The new tricot model RT-4 knitting machine of Robert Reiner, Inc. is reported to improve quality control and to reduce the amount of handling. Features of the machine include: automatic beam let-off transmission and warp tension adjuster; automatic cloth take-up; electromechanical brake clutch with needle down disc to reduce stopmarks; instantaneous cam brake action; automatic oil feed lines; automatic guide bar lift with safety controls; etc. The machine has a knitting width of 168 inches and is capable of knitting all gauges.

Safety stop mechanism for knitting machines

Eugene R. Harzer (to Karl Lieberknecht, Inc.) USP 2,573,261, Oct. 30, 1951.

Automatic safety stop mechanism for a straight electric motor-driven knitting machine having two longitudinally-extending members, and separate means for reciprocating the members endwise in synchronism during the knitting, the mechanism including a stationarily-mounted switch connected in circuit with the motor and having an actuating arm, a horizontal bail-like trip element underlying the switch-actuating arm, a stationary part of the machine on which the trip element is pivoted.

The thing

Staff. *Textile Industries 115*, 123 (Oct. 1951).

The "Reading" dozens counter, alias Egghead the Brain, used at Berkshire Knitting Mills, is a simple, sturdy, efficient device which automatically counts a dozen pairs of stockings as they are removed from the examining forms. The dozen indicator disk is set to lock automatically at any point between 1 and 10 and can't be released except by resetting zero position. Thus, the desired number of dozens are assured in any

particular bag. The device is mounted on a swivel bracket for easy adjustment.

Yarn carrier for knitting machines

Josef S. Karl. USP 2,574,041, Nov. 6, 1951.

In a knitting machine, a carrier rod, a carrier assembly having a holder and an adjustable carrier arm, means including clamp screws for detachably securing the holder to the carrier rod, means for adjustably securing the arm to the holder, a bracket having introductory yarn guides spaced apart vertically along the bracket, means including a hook at one edge of the bracket and a manually operable latch at the opposite edge of the bracket for detachably connecting the bracket to the carrier assembly independently of the means for securing the holder to the rod and without disturbing the adjustment of the arm and a yarn discharge tube at the lower end of the arm.

Special fabrics C 4

Acetate pile fabrics

E. E. Walker, R. J. Mann, J. F. Levers, and Brit. Celanese Lt. Brit. P. 656,035. *Dyer 106*, 313-14 (Sept. 7, 1951).

Woven pile fabrics, particularly suitable for use in millinery, are formed by fixing a layer of a second fabric to the back of a woven pile fabric by means of an emulsion of polyvinyl chloride, tricresyl phosphate, and methyl ethyl ketone. The pile fabric may be woven from a ground warp of cotton yarns and a pile warp of continuous filament cellulose acetate yarn with the pile formed by the ends of V-shaped loops, the bights of which being secured in the ground warp by the ground weft, a continuous filament cellulose acetate yarn. The pile fabric is secured to a thin satin fabric with cellulose acetate yarns in warp and weft.

The fabrics are given a preliminary coating of adhesive which is dried before they are united. The satin fabric is then passed a second time over the spreading bed and under the doctor blade and coat of wet adhesive applied. It then passes under a small roller where it is brought in contact with the pre-coated pile fabric drawn from another roll. The two fabrics pass together over a large drum and under a second small roller before passing over the drying plate.

Method of making stretchable woven fabric

Merwyn C. Teague (to U. S. Rubber Co.) USP 2,574,200, Nov. 6, 1951.

The method of making a two-way stretch fabric formed of a non-elastic woven sheet having a rubber backing secured thereto, which comprises weaving in the fabric heat-shrinkable weft yarns, heating the fabric so as to cause these yarns to contract the fabric weft-wise, applying a film of tacky rubber to one face of the shrunken fabric and employing this tacky film to bond the fabric to a longitudinally stretched rubber belt, then allowing this belt to contract to shrink the fabric warp wise, heating the transversely and longitudinally contracted fabric to dry the tacky film, and removing this fabric from the rubber belt.

Twisted dyed waste with spun silk to create rough textured crash

Anon. *America's Textile Reptr. 65*, 9-10, 42 (Nov. 1, 1951).

A mixture spun crash fabric is analyzed in which the base yarn in the filling is an ordinary spun silk containing bunches or irregularities produced by a range of 4 colors of dyed silk waste twisted with the silk yarn to give smoothness and create a ribbed texture. The warp is of acetate. Regularity or evenness in color and reduction in pattern effect which are important in this fabric are obtained by proper methods and care in the early manufacturing steps and in the use of a box loom with as many shuttle changes as possible. The material is a comparatively easy one to produce after the filling yarn has been made.

Use two-ply filament warp yarns to produce soft dress gabardine

Anon. *America's Textile Reptr. 65*, 11-12, 46 (Dec. 6, 1951).

A fine twill dress gabardine fabric, made entirely of filament yarns and having unusual flexibility, is described. A large percentage of the total fabric weight consists of acetate filament yarn which gives softness to the fabric but reduces somewhat its tensile strength. The warp consists of a 2-ply filament yarn in which the two ends are of different denier and composition. One of the yarns is acetate and the other viscose, and one is dull and the other bright. Small over-all irregularities to give subdued luster in the fabric are thus obtained from this twisted warp yarn. The filling is acetate filament yarn having a small amount of crimp. Interesting features of the fabric include the fineness of the woven effect, the high construction, and the very little contraction or shrinkage in the weaving operation.

STANDARD FINISHING D

American visit to W. Riding

Anon. *Dyer 106*, 103-4 (July 27, 1951).

Extracts are given from lectures on the Harrisstrip process for removing color from wool by Dr. Milton Harris and the Textralizing process for crimping wool by A. G. Ashcroft.

Another source of "tar spots"

Institute of Textile Technology. *Textile Industries 115*, 123, 203-4 (Dec. 1951).

See front section.

Dialysis of caustic soda solutions

R. D. Marshall and J. Anderson Storrow. *Ind. and Eng. Chem. 43*, 2934-42 (Dec. 1951).

Concentration distributions have been measured in the continuous countercurrent dialysis of 20 wgt. % sodium hydroxide solutions in order to assess the mass transfer in terms of dialysis coefficients appropriate to specific positions along the contact path. Comparison of exact and approximate methods for the calculation of over-all coefficients shows that for design purposes it is adequate to use an over-all co-efficient based on the logarithmic mean of the terminal concentration differences between the lye and water cells. Relative resistances to transfer in the assessed for various positions on the membrane liquor "films" and in the membrane have been and it has been shown that the reduction of either resistance will increase the over-all dialysis coefficient. Approximate design methods have been suggested from these analyses.

Felt processing machine

Orr Felt & Blanket Co. Brit. P. 654,079. *Dyer 106*, 176 (Aug. 10, 1951).

Machinery for curing resin in industrial felts consists of a treatment chamber in which the felt is stretched between a curing roll and a roll which is mounted on a movable carrier. At one end of the treatment chamber is a heating chamber with a conduit through which fresh air is drawn by blowers. Air ducts, provided with jets, extend along the sides of the treatment chamber and discharge the heated air into the chamber. The curing drum consists of a cylindrical shell having a number of radial fins which extend from the outer surface of a solic cylinder. On one spiral fin is mounted a foraminous cylinder, thus forming a gas chamber between the foraminous and solid cylinders. A low pressure area between the cylinders is produced by forceful application of streams of heated air on the surface of the felt through nozzles together with the suction of a blower so that a large volume of heated air is constantly delivered through the body of the felt on the curing drum. An overhead trolley system loads and unloads the felt into and out of the treatment chamber.

Finishing rayon crepes

Anon. *Dyer 106*, 129, 131 (July 27, 1951).

To obtain a good pebble, closed appearance, soft handle, correct shrinkage, etc. in rayon crepe fabrics, utmost skill must be used in the finishing. In addition, the earlier stages of processing, such as embossing or precreping and the actual creping itself, have a marked influence on the final appearance of the fabrics. A discussion is given on the factors which influence the final appearance of the crepe in embossing, creping, delustering, dyeing, tensionless drying, and calendering.

High speed butt-end seaming machine

Anon. *Dyer 106*, 195 (Aug. 10, 1951).

A new high speed butt-end seaming machine of Bellow Machine Co. Ltd. produces a seam that will withstand the heaviest calendering and clip tentering, and all processes from grey to finishing rooms. The machine also makes overseaming stitches which, when opened out, give a perfectly flat join with the edges of the material butted firmly and neatly together.

An identification scheme for textile finishing agents

C. H. Giles & E. Waters. *J. Textile Inst. 42*, P909-32 (Oct. 1951).

An identification scheme is described for routine qualitative examination of more than 60 finishing treatments on cellulosic fibers. The sample is given a preliminary examination involving gentle heating, water-spotting, testing for nitrogen and chlorine, and microscopic observation of its behavior with cuprammonium hydroxide solutions. According to the results of this examination it is subjected to further tests set out in one or the other of a series of systematic tables included in the article.

Pneumatic guider for tensionless finishing

Anon. *Dyer 106*, 327 (Sept. 7, 1951).

A new model pneumatic guider of Daniel Foxwell & Son has its guide rollers driven at a surface speed equal to that at which the cloth is running with the drive usually obtained from the machine to which the guider is applied.

Thus, no resistance is applied to the cloth passing through the nip rollers, and it is possible to guide the most delicate and elastic fabrics without any stretching or distortion and without applying length tension.

Preparation and bleaching of cotton piece goods. 3.

A. Durfee Damon. *Textile Industries 115*, 138-9, 141, 143 (Oct. 1951).

The continuous peroxide bleaching method is the most modern method of bleaching available today. It offers savings in steam, chemicals, labor, and time; and it produces superior whites without being detrimental to the cloth. Three systems: the Becco, DuPont, and Mathieson, have been developed and are all basically alike outside of the difference in steaming the cloth. All of the systems depend on a saturation of the cloth with caustic soda solution, followed by steaming, washing, a second saturation with a peroxide solution, steaming, and washing. A description of the Becco continuous peroxide bleaching system is given and includes: the bleach range described, range drives, passage of cloth, chemical supply, operating schedule, starting the system, emptying the system, and the wet J-box. Both the Becco and DuPont systems were designed for running cloth in the rope form, and each has a modified version for running cloth open-width. Pointers on operating an open width bleach range with the DuPont system using Williams Units and also pointers on operating a rope system bleach range with the Becco system are outlined.

Soap for textiles

F. H. Bell. *Dyer 106*, 105-6 (July 27, 1951).

A discussion is given on the manufacturing process for soap; its alkali, fatty acid, etc. content; soap used in scouring wool, etc.

Survey of textile finishing

Anon. *Dyer 106*, 165-70 (Aug. 10, 1951).

Finish may be regarded as appearance, handle, luster, uniformity, reaction to external conditions, etc. of a fabric; and the yarns, construction of a fabric, processing of yarn and fabric all affect the final finish. In this survey the scope and limitations of textile finishes are discussed in terms of the physical and chemical properties of the fibers and yarns from which fabrics are made.

The three main functions of textile finishing include: (1) to dry and bring the fabric to the correct dimensions, and leave the filaments or

hairs of the yarn in the required state or position; (2) to take advantage and account of the physical properties of the fibers and fabric; and (3) to modify the properties of the fibers and fabric by chemical means to counteract their "short comings" for the specific purpose for which the fabric is required within the scope and limits of the fiber properties. The first of these functions is discussed.

What about textile-chemical supply prospects?

Anon. *Textile World 101*, 105, 286, 288 (Dec. 1951).

See front section.

Torridon survey of scouring practice

B. F. J. Moxon. *Dyer 106*, 106 (July 27, 1951).

In a survey of scouring and milling practices by the Wool Industries Research Association, the weight of the load in the scouring machine, multiple bath scours, use of soda ash, use of alkali, use of soap, etc. are considered.

Woolen and worsted scouring. I

T. H. Sedgwick. *Dyer 106*, 297-300 (Sept. 7, 1951).

The primary object of scouring is to cleanse the fabric and prepare it for further finishing processes. In many cases the scouring may be essential for the development of the structural features of the cloth or for eliminating tension and extension from weaving. Methods used in scouring are dependent on the type of cloth and impurities of which oil is the most complex. The complexities of oil removal and the detergent action involved are discussed. Other subjects which are discussed include the type of scouring; the water used for scouring; scouring agents; scouring machinery; and procedures for worsted scouring, woolen fabrics, and low woolens.

DYEING AND PRINTING E

Adjustable screen frames

J. E. Freeborn & Tenax Transfers Ltd. Brit. P. 655,457. *Dyer 106*, 311-12 (Sept. 7, 1951).

Adjustable screen printing frames with provision for correcting local distortions of the screen consist of outer side members having an inwardly facing recess extending around the frame. Four screen-holding members are fitted into the recesses, in which they are adjusted inwardly or outwardly by screws engaging in tapped holes in the members. Retaining mem-

bers prevent the screws from displacement in either direction. The screen is passed over the ledge and pressed down into the groove, where it is secured by a series of S-shaped spring clips. Any stretching or shrinking of the screen can be overcome at least partly by adjusting the individual screws.

Cellulose acetate and vat dyestuffs

G. D. Sutton. *Can. Textile J. 68*, 57-59, 61, 63, 65, 79 (Oct. 26, 1951).

Historical data on the development of dyestuffs and dyeing methods for cellulose acetate fabrics, with particular reference to research work on the use of vat dyes and the modern methods of application.

In view of the observations made during the course of the work described in this paper on the dyeing of cellulose acetate rayon with vat dyes in the presence of a swelling agent for the cellulose acetate it appears reasonable to conclude that dyeing takes places in a purely physical/mechanical manner.

Chromiferous azo dyestuffs

Ciba Ltd. Brit. P. 654,023. *Dyer 106*, 178 (Aug. 10, 1951).

Chromiferous azo dyes which are suitable for dyeing wool from an acid bath and which contain an ortho-amino-ortho-oxy-azo grouping in the chromed condition are claimed. Dyeing is carried out in the presence of an aldehyde which contains, besides the aldehyde group, an ionizable acid group. Formaldehyde sulfonic acid, acetaldehyde sulfonic acid, and sulfonic acid, and sulfonic acids of benzaldehyde are mentioned.

Continuous dyeing processes with water-soluble dyestuffs

G. T. Douglas. *Dyer 106*, 102 (July 27, 1951).

In the continuous application of water-soluble dyes to flat fabrics, the fabric must first be thoroughly prepared so that they have good absorbency or, at least, uniform absorbency throughout the material. A suitable temperature for padding is from 50-60° C, and a solubility agent can be added to compensate for the reduced solubility of the dye at this lower temperature. The best set-up after padding is to pass the cloth directly from the pad to the ager in the wet state. Different conditions will exist from those in a printworks ager as there is little condensation of steam on the fabric and no rise in temperature due to latent heat. After rinsing, the material is then

dried. The application of water-soluble dyes to viscose rayon, acetate rayon, and nylon is briefly considered.

Dyeing acetate with Indigosols

Anon. *Dyer 106*, 127 (July 27, 1951).

A process has been worked out by Durand and Huguenin for obtaining deep shades on acetate rayon. The process consists of dyeing in an acid bath, ph 1.4 to 2.5, in the presence of a reducing agent, and then developing as usual with sulfuric acid and nitrate. Fastnesses obtained almost correspond to those of Indigosols on cotton, and the process is suitable for acetate in all its forms and for processing on various types of machinery. A general recipe for dyeing by this process on the winch beck is given.

Dyeing at the turn of the century

Frederick Dannerth. *Textile Industries 115*, 130-1, 239, 241 (Oct. 1951).

The experiences of a young fellow in learning about the dyeing of cotton hosiery and of woolen yarn in the year 1900 are described.

Dyeing cellulose acetate

Alexis Wiazmitinow & Henk Goorhuis (Sandoz A. G.) UEP 2,574,806, Nov. 13, 1951.

Fabrics of cellulose acetate are dyed or printed using a special aqueous composition containing the dyestuff, a thickening agent, a thiocyanate, a lower aliphatic acid, urea, and ethylene glycol, the dye being fixer by heating without the necessity of steaming.

Dyeing machine

Ferdinand C. Neu. USP 2,573,047, Oct. 30, 1951.

A machine for dyeing material comprising a tank, rotatable carriers for supporting skeins of the material mounted in the tank, a cover for the tank, comprising a hollow housing presenting a lower wall, perforated drip bars in the wal, a perforated fluid pipe passing through the housing and constituting a pivot about which the cover can be swung a section of the housing encasing the pipe being spaced therefrom in a portion adjacent the perforations to provide for evenly distributing the fluid over the lower wall of the cover, a plurality of means for spraying dye fluid on the skeins, means for circulating the fluid through the tank, the cover and the spraying means, and means regulated by the opening and closing movements of the cover for respectively stopping and starting the operation of the fluid circulating means for controlling the circulation of the fluid.

Dyeing and finishing dynel in Kersey blends

T. A. Field, Jr. & Henry L. Pero. *America's Textile Reptr. 65*, 63, 65 (Nov. 22, 1951).

Methods of finishing and dyeing dynel to be used in blends of 15% dynel and 85% wool for Marine Corps Kersey Cloth are outlined. The "copper drip" technique of dyeing to be used in the dynel-wool blend and a new process for dyeing dynel with mixtures of acid and acetate type dyes are described. In the processing and finishing of these new blends, only slight differences are necessary. Recommendations for blending, oiling, weaving, carbonizing, pressing, etc. are discussed.

Dyehouse built for control

Staff. *Textile Industries 115*, 125-9 (Nov. 1951).

The dyehouse at Bachmann Uxbridge Worsted Corp. is streamlined and ultra-modern and is designed for the convenience and control of the boss dyer. With the control room located on a mezzanine, the boss dyer is able to view the entire dyehouse through glass windows and to communicate with the dyehouse by intercom. Samples are received through a pneumatic tube, and color matches are made in the control room. Solutions being prepared in the next room can be watched, and the mix can be seen as it feeds to the proper machine via glass tubes. Other highlights include modern processing and control equipment, excellent lighting, ducts to prevent fog and condensation, etc. Photographs illustrate many of these features.

Dyestuff carriers in printing

C. Bener. Brit. P. 651,324. *Dyer 106*, 176 (Aug. 10, 1951).

An improved method of textile printing uses dyestuff carriers consisting of a linseed oil varnish and printing oil, and the printed material is treated with moist steam for a period to render the carrier at least partly water penetrable so that the penetration of the dyes to the fibers is effected. Any unmodified carrier may afterwards be removed with an organic solvent, e. g. trichloroethylene. Fixation of the dye after treatment with moist steam may be effected by the addition of substances which have an acid reaction or which release acids under the action of steam.

Lustrous printed effects

Joseph Bancroft & Sons Co. Brit. P. 655,700. *Dyer 106*, 314 (Sept. 7, 1951).

Lustrous effects are obtained on cellulose fabrics by printing a pattern with a paste containing thermosetting resin-forming materials which become water-insoluble when heated. The printed fabric is then passed through a heated friction calender, on which the resin is wholly or partially polymerized. Vat dyes are incorporated in the resinous printing paste by first treating the vat dyes in an alkaline solution containing an agent which will reduce the dye to the leuco form so that it is obtained in the solution in the molecular or semi-molecular form as the sodium salt of the leuco base of the dye. This alkaline solution is then neutralized with formic or acetic acids and mixed into the paste containing the usual type of printing gums and thermo-setting, resin-forming ingredients. With a sufficiently acid paste a catalyst is not needed, but it usually is an advantage to add one such as ammonium thiocyanate. The paste may also contain a lubricant to prevent sticking and chewing of the cloth when passing through the mechanical equipment.

"Mixture effect" of dyestuffs

Ciba Ltd. Brit. P. 654,551. *Dyer 106*, 178 (Aug. 10, 1951).

Stronger tints are sometimes obtained on cellulose acetate by using mixtures of dyes of similar color instead of a single dye, and unexpectedly good dyeings on cellulose esters are obtained by using mixtures consisting of 1-(B-oxyethyy) - amino-4 - phenylamino - anthraquinone and 1 - methylamino - 4 - phenylamino -- anthraquinone is finely divided form. Dyeing of great purity is also claimed.

Novel mordants

E. I. DuPont de Nemours & Co. Brit. P. 655,861. *Dyer 106*. 313 (Sept. 7, 1951).

Naphthol carbonamides may be applied on wool, silk, nylon, casein or gelatin by bathing, impregnation, or precipitation. A practical method for wool comprises bathing yarn or fibers in an aqueous alkaline solution containing 1 to 5% of the carbonamides, then neutralizing with acid. When basic dyes are applied, the dyed material has good stability to light and washing and improved light fastness as compared with unmordanted dyed material. The compounds are prepared by reacting L - oxynaphthoic acid chloride with appropriate amines in the presence of condensing agents, e. g., pyridine.

Rayon and synthetic fibers

Anon. *Dyer 106*, 121, 127 (July 27, 1951).

Direct dyes are mainly applied to the cellu-

losic fibers but can and are used in dyeing wool and silk. They are easy to apply, generally adaptable, and are relatively low in price. However, there is room for much improvement in the uniformity of properties of direct dyes, both in their application and results. In most cases certain of the direct dyes may be found satisfactory to meet the requirements of such properties as wash fastness or brightness or light fastness, etc. But if two more properties are required at the same time, often the number of dyes is very limited.

Reduction of direct viscose rayon dyes

W. Armfield. *Can. Textile J. 68*, 59-61, 63, 65 (Nov. 23, 1951).

Reduction of direct dyes during the dyeing of viscose rayon in bulk practice has been shown to be due to the presence of alkali, and some direct dyes contain alkali in sufficient quantity to cause reduction of other dyes. Reduction which occurs readily at the boil is decreased by lowering the dyeing temperature, but the disadvantage of dyeing below the boil is that the rate of diffusion of the dye into the fiber is decreased. This means that in practice a longer time is required in which to level any initial unevenness in dyeing, such as a bad strike.

Resistance to gas fading of dyed acetate

H. W. Grimmel, A. Guenther, General Aniline & Film Corp. Brit. P. 654,788. *Dyer 106*, 176 (Aug. 10, 1951).

A gas fading inhibitor for acetate rayon is claimed in which the protective agent is applied in the dyebath simultaneously with the dye. The treatment uses 1, 4-di(arylmethyl)piperazines.

Screen printing table

F. Buser. Brit. P. 654,713. *Dyer 106*, 177 (Aug. 10, 1951).

A screen printing table is claimed in which an endless conveyor belt serves as a carrier for the fabric to be printed.

Sorption of acid dyes by nylon under nonequilibrium conditions

F. C. McGrew & W. H. Sharkey. *Textile Res. J. 21*, 875-79 (Dec. 1951).

Nylon filament yarn colored with acid dyes frequently shows unevenness in appearance. In some cases this unevenness can be traced to slight differences in orientation due to uneven drawing. In other cases small changes in the number of amine end-groups in the polymer cause this effect. It has been found that this unevenness

can be minimized, and with some colors completely eliminated, by dyeing in a bath so dilute in dye as to be colorless to the eye.

Warp printing machine

Herman Epstein. USP 2,573,097, Oct. 30, 1951.

In a yarn-dyeing apparatus, a plurality of color forming means for applying different colors each effective simultaneously to form the same color across a plurality of strands and all arranged in succession along the path of travel of the strands, means for transporting the plurality of strands of yarn past the color forming means, a control member moving synchronously with the transport means, contact means supported on the control member for movement therewith, and stationary contact means engaging the moving contact means in regular periods so as to produce a series of pulses corresponding to the position of the control member.

SPECIAL FINISHING F

Bleaching powder in wool anti-felting process

Tootal Broadhurst Lee Co. Ltd. Brit. P. 654,739. *Dyer 106*, 177 (Aug. 10, 1951).

An anti-felting process for wool using a solid compound of fluid halogen, preferably chlorine or bromine, is claimed to be simpler to carry out and easier to control than conventional processes and may be used on shaped garments with less tendency for them to become distorted. A suitable compound for the treatment is bleaching powder. The wool may be embedded in the finely divided solid compound and then rolled up. The substance is removed by shaking and brushing it from the fabric which is then washed and treated with an anti-chlor such as sodium bisulfite. The time required for treatment can be modified by using a solid diluent inert to the halogen, e. g., china clay, sodium carbonate or fine sand.

Discussion on treating duck fabrics

Staff. *Textile Industries 115*, 247, 249 (Nov. 1951).

In answer to an inquiry on treating duck fabrics, a contributor discusses the role of natural waxes in cotton fibers in giving some water repellency to the fabric. The best known compounds for making cotton resistant to water include various mineral and vegetable oils and waxes, bituminous products such as tar and asphalt, insoluble mineral soaps, and chemical treatments that include acetates of aluminum

and cupramonium compounds. A modern method of giving water repellency combines soap and aluminum acetate in a stabilized emulsion. In many cases these treatments make cotton sensitive to the action of sunlight so that if the fabric is to undergo exposure, some material should be used with the water repellent to offset this tendency.

In preventing mildew or bacteria, treatment with a water repellent may protect duck adequately in temperate climates, but in climates which are very favorable to mildew the addition of a fungicide to the water repellent gives better results. A satisfactory type of fungicide for cloth treatment is copper naphthenate.

Due to the different conditions under which awnings are used, awnings containing woven stripes may or may not be treated with rot-proofing agents. For example: those used in moist, shaded locations where mildew growth is likely will generally have fabric breakdown during exposure to the sun when rot-proofing agents are used.

Paint used in printed awnings is a composition containing pigments of different colors and a plastic of the vinyl type.

Finishing of fashion fabrics

Anon. *Rohm & Haas Reptr. 9*, 7-11 (Nov.-Dec. 1951).

The article described the finishing processes in a commission finishing plant, Sanco Piece Dye Works of Phillipsburg, N. J. Some of the chemicals used by the process are described.

Fully washable rayons with new Dan River finish

Russell B. Newton, Harley Y. Jennings & L. K. Fitzgerald. *America's Textile Reptr. 65*, 73, 75, 87 (Nov. 22, 1951).

A new chemical treatment for viscose rayon fabrics, referred to as X-2, has been developed after 7 years of research by Dan River Mills, Inc. The finish is applied to the fabric as one of the last stages of processing and comes after dyeing. It charges the molecular structure of the rayon fiber so that the improved fiber cannot return to its original state. The same speed, temperatures, and equipment, as used for applying resin, are employed in the treatment with exposure for about a minute to 270-300°F folowing padding of the goods with a chemical compound. Benefits of the new development include complete washability, permanent wrinkle resistance, elimination of all chlorine to mildew

and rot, resistance to alkaline and acid bleaching agents, stability against stretching and shrinking, and elimination of unpleasant odor. In addition, both the flex-life and flat abrasion resistance of viscose is extended up to 4 times that of resin finished rayons. Commercial production on such fabrics has started, but volume availabilty is not expected until the spring of 1953.

"Kelpie" anti-shrink process for woolens available in U.S.A.

Staff. *Textile Industries 115*, 146 (Nov. 1951).

See front section.

Machinery for wool anti-felt process

Tootal Broadhurst Lee Co., Ltd. Brit. P. 655,779. *Dyer 106*, 312-13 (Sept. 7, 1951).

A textile processing machine is described in which treatment with liquid and gases, drying and conditioning can be carried out while the goods remain in one container. The equipment is described with particular reference to chlorination of wool goods.

Multi-ply fabrics

Brit. P. 655,462 (Bleachers Assoc. Ltd. *Skinner's Silk and Rayon Record 25*, 1371-2 (Oct. 1951).

A process wherein the pile of a cotton fabric which has been given a water repellent finish is gelatinized by H_2SO_4. The treated fabric may then be pressed against another fabric or sandwiched between two other fabrics.

New Collins & Aikman process

Anon. *Am. Wool Cotton Reptr. 65*, 98 (Oct. 18, 1951).

The new Collins & Aikman process for integrating a foam rubber backing with carpeting applies the foam rubber composition directly to the fabric in the form of a thick cream, solidifying into a foam rubber pad that is an integral part of the carpet. The method not only avoids the use of an adhesive, but also cuts down on the need of heavy backing threads thus permitting a denser pile if desired. Other advantages of the process include: no binding of edges is necessary, color can be incorporated in the foam rubber to match the carpet, water will not penetrate the rug, vibration and sound are minimized, etc. The process is suitable for fabrics of nylon, animal fibers, carpet viscose, and blends of these fibers.

Resin finishes for textiles

Monsanto Chemical Co. Brit. P. 654,077. *Dyer 106,* 178 (Aug. 10, 1951).

A simplified resin treatment for finishing fabrics consists of passing the fabric through water dispersions of various polymerized vinyl resins which comprise negatively charged particles. Agglomeration of the particles or use of cationic surface tension reducing agents, which lessen the light fastness of dye fabric, is thus unnecessary. For polyvinyl acetal resins a pH of 8 to 10 and for resins such as the polysyrene type a pH of 2 to 10 may be used. An example is given in which black dyed cotton duck is treated to increase its abrasion life.

Stabilizing cellulose fabrics

Bozel-Maletra. Brit. P. 655,913. *Dyer 106,* 311 (Sept. 7, 1951).

Water-soluble products, containing in dry weight up to 45% formaldehyde in combined form, for stabilizing cellulose fabrics can be obtained by condensing an organic di- or poly-acid amide containing no free acid group, e.g., urea, melamine, or oxamide, in an acid medium with such an amount of glyoxal that only a portion, preferably not exceeding 50% of the reactive hydrogen atoms, are substituted, and then treating the condensation products obtained in an alkaline medium with sufficient formaldehyde to substitute the remaining hydrogen atoms of the amide. The products allow the cellulose fiber to be treated under very mild conditions, avoiding any degradation of the cellulose. Their non-volatility, stability, and good solubility in water make it possible to obtain a uniform effect, and no unpleasant vapor is given off during the drying operation.

Waterproofed fabric

David N. Beauchamp (Wingfoot Corp.) USP 2,575,577, Nov. 20, 1951.

A water-impermeable, water-vapor-permeable fabric having a coating of a polydiene rubber containing a hydrophilic diatomaceous earth.

TESTING AND MEASUREMENTS G

Clothing and fabrics G 1

Soil measurement tests win AATCC prize for New York

Anon. *America's Textile Reptr. 65,* 12, 17 (Nov. 8, 1951).

(Research paper of New York section of

AATCC). Three laboratory test methods for measurement of soiling of fabrics include the blower, tumbler, and floor soiling methods with each method designed to cover specific mechanisms in soiling. The blower test causes impingement of soil from an air-stream by interception and inertial effect, and test results were shown to be very sensitive to fabric construction. Thus, the test may be adaptable for evaluating flat fabrics.

The tumbler test causes impingement of soil by deposition and transfer and probably some direct interception. It is less sensitive to differences in fabric construction and may be useful for evaluating fiber types.

The floor test produces impingement principally by deposition and transfer. Its application is mainly to floor covering fabrics but may offer an opportunity for checking the results of the other 2 test methods. Results of the three tests are discussed.

Some effects of construction on the laundering shrinkage of wool fabrics

Herman Bogaty, Louis I. Weiner, Arnold M. Sookne, Mary L. Cozart & Milton Harris. *Textile Res. J. 21,* 895-901 (Dec. 1951).

Greater stability to felting shrinkage in woven fabrics may be achieved through the use of a larger number of ends per inch, higher-twist yarns, and heavier yarns (lower yarn number). The use of plied yarns, other things being equal, does not appear to confer added shrink-resistance to a fabric. A fabric woven with warp and filling yarns of opposite twist direction felts to a greater extent than one in which the yarns are of the same direction of twist. Plain-woven fabrics show greater felt-resistance than various twill weaves of similar texture. In general, the relative feltability of a fabric is determined by its compactness; appropriate measures of the latter for this purpose are cover factor, flexural rigidity, and air permeability.

Instruments and instrumentation G 2

Comments on control laboratory

Staff. *Textile Industries 115,* 243, 245 (Nov. 1951).

An efficient testing and controlling laboratory should be of the utmost importance in a textile mill for if the laboratory is functioning properly, a complete picture of every process as to good or pure quality can be seen from the

work of the laboratory. Changes for correcting situations in which the quality is poor can be found in the control laboratory, and data to prove any recommended change should be accumulated by the laboratory. All kinds of experimental work for obtaining the most from a product for the least cost and for finding the necessary adjustments to produse the best results on the machinery used are done in a control laboratory. Finally, cooperation between the laboratory and the different department heads is important for good results.

Flow through fabric-like structures

S. E. Penner & A. F. Robertson. *Textile Res. J. 21,* 775-88 (Nov. 1951).

The effect of weave structure on the fluid flow is investigated in the range of Reynold's numbers 10 to 400. A liquid is forced past models representing the four possible combinations of yarns in a woven fabric interstice, and the fluid motion is visualized by using air bubbles, which are detected by means of a suitable light source, as the distinguishing medium. Visual and photographic investigations of the flow are made in various significant planes normal to the fabric-like structures, or parallel to the direction of flow, and interpreted to provide information concerning the effect of fabric construction and variation of Reynold's number on the area available for passage of fluids through each pore type.

Thermal degradation in tire cords

Verne W. Tripp, Trinidad Mares, & Carl M. Conrad. *Textile Res. J. 21,* 840-46 (Nov. 1951).

The thermal degradation of cotton and rayon tire cords exposed to temperatures in the range 230° — 302°F. for periods from 16 to over 1,000 hrs. resulted in significant decreases in the average modulus and breaking toughness of the cords. These decreases were progressive with heating time. The degree of resilience of mechanically conditioned cords at 50% of the breaking load was not significantly changed by heating. The change in modulus by heat degradation was considered to be less significant than the changes in strength or toughness of the heat-degraded cords over a wide range of breaking strength loss.

The Blanchard Dynamoter

Anon. *Textile Industries and Fibres 12,* 182 (June 1951).

See front section.

TEXTILE MILLS H

Aluminum contributing to increased textile production

Anon. *Am. Wool Cotton Reptr. 65,* 15-16, 109-(Oct. 18, 1951).

Due to its lightness, stability, corrosion resistance, smoothness of operation at high speeds, non-staining characteristics, etc., aluminum is being increasingly used in machinery parts in the textile industry. A review of some of the use of aluminum in textile machinery parts is presented.

Automatic steam generator

Staff. *Textile Industries 115,* 133-4 (Nov. 1951).

Installation of a new Cleaver-Brooks Model BR 401 x 15 automatic steam generating plant at the Chinnabee Dye Division, Wehadkee Yarn Mills is reported to have cut both fuel and labor costs. The plant is equipped to operate on either gas or oil. A description of the equipment is presented.

Bigelow's modernized power plant provides reliability, economy

H. L. Stiegler. *America's Textile Reptr. 65,* 52-3, 55, 57, 59, 61 (Nov. 22, 1951).

Modernization of the power plant of the Thompsonville Mill of Bigelow-Sanford Carpet Co. has resulted in an increase in both the steam and electrical generating capacity and has provided the utmost in reliable operation. Modernization program is given together with features of the new installaton.

Business' successor to "Diamond Jim" Brady

Robert H. Fetridge—(from "Along the Highways and Byways of Finance"). *New York Times,* F5 (Dec. 30, 1951).

See front section.

Big loads and long hauls

James R. Bright. *Modern Materials Handling 6,* 40-44 (Dec. 1951).

There's a trend springing up around some of the smartest handling operations in this country based on a realization that we have not pushed the unit load principle to its maximum payoff point. Too often, we apply the unit load idea to fork trucks and then call it a day. Yet there are other vehicles that can handle even larger unit loads.

A second factor is that there are thousands of materials movements where the main job is one of horizontal travel with little or no lifting.

Obviously, we ought to apply a high speed, self-loading vehicle for this kind of handling.

Add up these three requirements—large loads, high speed travel, and self-loading — and you have a good description of the straddle carrier's features.

"Sure, Straddle Trucks are fine for handling lumber or pipe, but that's not our problem" . . . you say. We agree — but is economical materials handling your problem? If so . . .

Have you seriously considered developing unit loads of three, four or even 10 times the size of your present unit loads?

Have you thought of what you might do with giant size containers, designed expressly for the straddle carrier?

And how much might you save in both time and investment by using the straddle carrier instead of a motor truck plus a loading device for long hauls? Not only could you eliminate the handling costs of loading and unloading the truck, but you might be investigating in just one vehicle instead of a motor truck plus a loading device at each end of the haul.

The straddle carrier loads or unloads itself, in roughly 3 seconds, using one operator. It will handle material of great length. It will handle material of great bulk. The payload is high. Straddle carriers for 22½ ton loads are standard production line items. It's fast. Speeds up to 50 mph are possible. It's one of the few handling vehicles that is equally at home on highways or on rough grounds. It's highly maneuverable because of 4-wheel steerng.

Can mills offset other rising costs by power plant savings?

Anon. *Am. Wool Cotton Reptr. 65,* 11-12, 83, 85, 87, 89-90 (Oct. 18, 1951).

In a survey of textile mill boiler and power plants, it is noted that the bulk of steam boilers now in use are antiquated as well as inefficient and that a definite analysis of electrical facilities has been too long neglected. Before any changes or modernization is decided on, however, the points of greatest waste in existing equipment or operation must be located. Each mill must be studied as an individual case as to type of operation, local conditions, etc.; and qualified power specialists should aid in studying a mill's needs.

Chromium-plated slubbers

Staff. *Textile Industries 115,* 123 (Nov. 1951).

In the construction of Veteran Mills, a cotton yarn mill, in 1946 all new machinery was used with the exception of two slubbers and a picker. By chromium plating certain of the slubber parts and painting the remainder, the slubbers were made to look like new. As a result, the slubber operators take good care of their machines and keep them as neat and clean as the other machine operators in the mill.

Combustion controls furnish power plant efficiency

T. N. Graser. *Am. Wool Cotton Reptr. 65,* 29, 31, 93-4 (Oct. 18, 1951).

An automatic combustion control system controls the quantity of fuel and the air used to burn it so as to supply the total amount of heat required and to provide for losses of heat that cannot be prevented. Advantages of such a control system, which are discussed, include higher power plant efficiencies, labor saving, fuel economy, cleanliness, simplicity of operation, safety of personnel, etc. A schematic operational diagram of the Hays combustion control system is given.

Don't blame your elevator

Anon. *Modern Materials Handling 6.* 41-3, 61, 68 (Nov. 1951).

The trouble with elevator bottlenecks may be in the space (or lack of space) at elevator entrances for loading and unloading, or in the way you load, unload and schedule the trips on your elevator.

Every company that uses freight elevators will do well to make a simple study of its own situation, along the lines shown in this article. The study need not be elaborate or time consuming, and requires no special training to make it. Time versus distance and other charts are illustrated.

Electrical hazards in textile mills. 3

Staff. *Textile Industries 115,* 137 (Oct. 1951).

An electrical hazard in a textile mill is illustrated by a totally enclosed, non-ventilated motor in a weave room connected to an ordinary switch enclosure with the connectors not watertight and the switch in a heavy lint area near the floor. Illustrations of other installations to correct this hazord are shown.

Fluorescent lighting cuts cost, improves product

Anon. *America's Textile Reptr. 65,* 13-14 (Nov. 1, 1951).

Installation of modern fluorescent lighting

fixtures in the inspection department of various mills has resulted in savings in production costs and the time and in materials. Savings have also been realized in the reduction in defective material. Although both daylight fluorescent tubes and Cool White fluorescent lamps have been used, the Cool White lamps have been found to give an increased level of illumination with a saving in equipment because of their higher lumen output. Use of Slimline lamps have been found to hold up well under adverse high humidity conditions prevalent in textile mills.

Guards over bleach-finish machine drives recommended

W. W. Arnold. *Textile Industries 115,* 149 (Oct. 1951).

(Extract of remarks made before National Safety Council) Although much has been done in preventing accidents and promoting more healthful working conditions in finishing departments, the exposed moving parts of drives of machines and equipment still create a hazard. every chain drive, V-belt drive, open sets of meshing gears, etc. should have a sheet metal guard designed and applied by the machinery manufacturer. Reasons why guards are usually not furnished and those things that must be done to coordinate machinery manufacturers and mills for properly guarding drives are outlined.

Little story, big moral

Wm. Henry Chamberlin. *Wall Street Journal 5* (Dec. 31, 1951).

See front section.

Load center system proves practical, economical

R. C. Hunt & J. Raymond Millinax. *Am. Wool Cotton Reptr. 65,* 13-14, 107 (Oct. 18, 1951).

Today, with the use of higher lighting intensities and the need to use much new power and heating equipment, distribution systems which were more than adequate when installed need to be modernized. The modernization of the power plant distribution system of Frank Ix & Sons, Inc. is described as an illustration of this problem. A load center system composed of several small units tailored to meet the requirements of the area served was used. Advantages of this system over a single large substation system are also discussed.

Mechanized talk — the newest materials handling tool

George A. Burke. *Modern Materials Handling 6,* 38-40 (Nov. 1951).

Some of the smartest handling operations in the country are proving that, for maximum efficiency, we must mechanize the control of materials handling equipment. This boils down to mechanizing communications between supervisor and operator.

Far too often studies unearth cases of fork trucks that are busy only 18 percent of the time when they could be busy 80 to 90 percent. In many cases it is because there is not adequate control or a means of assigning equipment to handling jobs as quickly as they come up.

Who hasn't seen material arriving at shipping docks equipped with the finest combination of trucks, conveyors and overhead systems for speedy handling — and then watched both the material and the machines stand idle waiting for instructions, waiting to be examined, waiting to be inventoried — all needless, expensive waiting.

To eliminate delays, this whole business of materials handling communications must be improved. Instructing handlers and equipment operators, checking shipments, inventory taking, most work should be eliminated or mechanized, just as has been done with the physical handling activity. Instead of written instructions or vocal instructions given in person why not use mechanical movement for verbal instructions.

Modernization of power plants has repaid mills in brief time

Anon. *Am. Wool Cotton Reptr. 65,* 19, 21, 25, 27, 91-2 (Oct. 18, 1951).

The fundamentals in techniques, mechanics, equipment and procedures involved in heat control studies for modernizing a mill's power plant are discussed. The various methods and equipment that can be used in the modernization of power plants are also described.

Modern equipment and processing review

Staff. *Textile Industries 115,* 137-69, 171, 173, 175, 177, 179, 181, 183, 185-6, 189, 191, 193, 195, 197, 199, 201, 204, 207, 209, 211, 213, 215-35 (Nov. 1951).

In this annual Modern Equipment and Processing Review, a description of new equipment, accessories, and services which have been made available or improved in the preceding twelve months is provided.

Modern equipment and modern methods

Henry Miedendorp. *Rayon N Syn. Tex.* CB, 108, 111-12, 115 (Sept. 1951).

The requirements of a modern textile mill

that must be considered to produce quality merchandise at a profit are discussed. Plant design, power and heat requirements, steam generating units, power transmission, etc. are reviewed. Selection and application of lubricants and automatic instrument controls are also discussed.

Modern generating unit increase plant efficienc

Anon. *Am. Wool Cotton Reptr. 65,* 35, 75-6 (Oct. 18, 1951).

Installation at Kerr Bleaching and Finishing Works of a 3-fuel design boiler using a coal fired by a spreader stoker has resulted in large savings in fuel labor, floor space, etc. The unit carries a load which varies from 30,000 pounds of steam per hour to 70,000 with practically no variation in steam pressure. In emergencies, the boiler is equipped to switch to oil or gas. The new boiler plant and its equipment are described.

Seamer table used for looping

Staff. *Textile Industries 115,* 136 (Nov. 1951).

At the Alden Mills a converted seamer table is being effectively used in the looping department and has improved employee morale, safety, and working conditions. Loopers are fastened to the opposite of the table on which the seamers were formerly fastened. Individual electrical outlets at each operative's station are provided for auxiliary lights or fans, and each of the overheal fluorescent lights is equipped with a control switch for convenience of the operative. Shafting and power take-off are safely enclosed under the looper tables out of the operatives way.

Service from V-belts

P. W. Peel. *Dyer 106,* VTV, 193, 195 (Aug. 10, 1951).

In this discussion of V-belt drives, a description of the drive is given together with a discussion of the different kinds of material in the belts and the advantages of V-belts. The engineering of the belt and pulleys to suit the drive is also discussed.

Single unit boiler fulfills economy requirements

Anon. *Am. Wool Cotton Reptr. 65,* 33, 95-6 (Oct. 18, 1951).

Modernization of the steam generating system at the Hanes Dye and Finishing Co. i cluded the installation of a modern steam generating unit equipped with an automatic type spreader stoker. This new unit, which occupies 37% less space, is reported to have reduced fuel consumption 20%, have provided 20% more capacity with high efficiency, and hold pressure closely under rapid load swings. A description of the new unit and its equipment is presented.

Strip lighting

Staff. *Textile Industries 115,* 124 (Nov. 1951).

At Robinson Mills, Inc., manufacturers of combed cotton yarns, a high level of evenly distributed light over wide areas has been provided by a new lighting system which has a now initial cost and simplified maintenance. In the winding, twisting, and spinning rooms continuous strips of fluorescent tubes, 8 ft. in length, have replaced outmoded, 150-watt, incandescent fixtures. The tubes are attached to thin troughs of white sheet metal with the exposed base of the trough giving a reflective surface for the light and the inside serving as a channel for th wiring. Only one ballast is used for every 2 tubes, and the fixtures are supported by ceiling hangers so that the tubes are 12 ft. from the floor. Refinished floors in all 3 rooms have also raised the lighting level and help to spread the light evenly.

The supervisor and his responsibilities. Article 5. Machinery maintenance

Ramon Parks. *Textile Industries 115,* 126-8 (Oct. 1951).

This discussion of machinery maintenance includes lubrication, machinery inspection, what to do after inspection, and maintenance by section men. The responsibilities of the supervisor with regard to machinery upkeep and repair are stressed.

Three types of steam from one process boiler

Staff. *Textile Industries 115,* 139 (Nov. 1951).

See front section.

Utilize synthetic detergents for mill maintenance purposes

O. M. Morgan. *Am. Wool Cotton Reptr. 65,* 11-12 (Oct. 25, 1951).

The desirable properties detergents, which have made them suitable for processing fibers and fabrics, are now being widely used in daily maintenance and housekeeping operations and have reduced costs as well as time and labor. A synthetic detergent, such as Nacconal NR, is not adversely affected by hard water, can be used at lower concentrations, and does not form insoluble, stocky slime curds. It can be used in

either cold or hot water for cleaning floors, walls, and refrigerator surfaces; in acid solution for metal cleaning; in alkaline solution for cleaning exterior or interior paint; and in the presence of either oxidizing or reducing bleaches to accelerate these bleaching processes. In addition, it improves the performance of many anionic germicides and disinfectants such as are used in slime control. A few of these applications of synthetic detergents in textile mills are outlined.

Vertical conveyor handles yarn cartons automatically

Staff. *Textile Industries 115,* 124-5 (Oct. 1951).

A vertical conveyor system at the Rush plant of American Yarn & Processing Co. moves cartons of yarn from the winding room on the second floor to the area below, on the first floor, where the cartons are strapped, weighed, and temporarily stored. The whole system is completely automatic from the time the cartons are loaded until after they are weighed. Included in the system are a vertical lift and two lines of stationary gravity roller conveyors. A set of 5 switches control the lift which is moved by an electric motor and cable. The handling of cartons of yarn is said to be considerably simplified.

Water softening-treatment for boilers and processing

F. Jackson. *Dyer 106,* 104 (July 27, 1951).

Water for use in scouring or other processes where soap is used must have any temporary or permanent hardness removed. Two methods of softening include the base exchange or zeolite process and the precipitation technique. The two methods are described and compared.

CHEMISTRY AND PHYSICS OF TEXTILE MATERIALS I

Alkaline dissolution of resinous materials

Ernst Back. *Svensk Papperstidn. 54,* 657-662 Oct. 1951).

After a review on the general structure and solubilization properties of soaps, data available on the micelle formation and solubilization power or resinous components in wood are tabulated. This information is used to discuss the dissolution of resinous matter in pulp making. A few factors important for the dissolution process are demonstrated by experiments employing a ray cell pulp containing 16% resinous matter.

Density of cellulose fibers

K. Lauer. *Kolloid Z. 121,* 135-7 (1951).

Data concerning density in water and carbon tetrachloride as well as the heat of sorption of various celluloses were compiled from the literature. From the composition of the fiber, determined with aid of its heat of sorption, its density in water and carbon tetrachloride was calculated, and the calculated values compared with those found experimentally. Three cellulose hydrates were found to exist with the following respective densities: 1.618, 1.642, and 1.644.

Destruction of native fibrous materials by microorganisms. I. II.

W. Wegener & R. Questel. *Melliand Textilber. 32,* 346-9, 493-9 (1951) ; *in German.*

A large number of fungi are discussed. These are distinguished as starch consumers which live on the textile finish; retting fungi which attack pectins and lignins; and cellulose destroyers which attack the fiber itself. The secretions of the microorganisms inhibit or promote their growth, these influences being dependent on changes in pH. Degenerate forms observed on textiles inoculated with micro-organisms were found to be especially injurious to textiles.

Fundamentals of flame retardancy

R. W. Little. *Textile Res. J. 21,* 901-8 (Dec. 1951).

A review of flame retardancy in fabrics shows relationship between fundamentals such as "burning", "combustion", and "flaming". The difference between two types of active combustion are compared with the differences between the burning characteristics of coal and coke. Flaming of a textile fabric occurs at the gas-air interface when oxidation can take place. Retardant compositions considered by the article are the simplest borate acid phosphate type inhibitors.

Heat of formation of cellulose hydrates I and II

K. Lauer. *Kolloid Z. 121,* 137-40 (1951).

Heats of sorption of various cotton celluloses were compiled from the literature, and the average taken. The heat of hydrates was calculated from these values. The heat of hydration of the 2 and 3 positions in glucose is calculated and from these values it is possible to calculate the heat of absorption of sodium hydroxide, the heat of mercerization of cotton and the heat of transformation of cellulose I to cellulose II.

Improving filtration and filtration rates

Chas. Fuhrmeister, Jr. *Chem. Eng. Progress 47*, 550-554 (Nov. 1951).

Facts and information are presented on a practical basis of the physical and chemical conditions which affect filtration rates, and mechanical means of handling slurries which improve filtration results.

Resistance of substituted cotton to microbiological deterioration

Chas. F. Goldthwait, E. M. Buras, Jr. & Albert S. Cooper. *Textile Res. J. 21*, 831-40 (Nov. 1951).

According to present experimental acetylations and special dyeing tests, deterioration by micro-organisms, takes place along fibers in various segments and throughout cross sections rather than as a layer increasing in thickness from the surface inward. At ⅓ substitution the amorphous cellulose is converted to tri-acetate, the cotton fiber still contains about two-thirds of the original cellulose, which is present as crystalline material surrounded by acetylated cellulose. Protection by partial acetylation is believed due to the blocking of hydroxyl groups, the filling of hydroxyl groups, the filling of spaces between chains in the amorphous cellulose, and the suppression of swelling. It represents a general method of rendering cellulose unsuitable, or at least inaccessible, as a food for microorganisms.

Reduction of static electrification

G. W. Graham. *Nature 168*, 871-2 (Nov. 17, 1951).

A study was made of the development of static electricity by friction on nylon. A description of the apparatus used to develop the electricity is given and the inhibiting effect of various compounds is related. Graphical data indicate the effect of the dielectric constant on the charge and the effect of surface activity on the charge.

The reactivity of cellulose to acetylation

Karl Borgin. *Norsk Skogind. 5*, 69-74 (1951); *in English.*

The acetylating mixture is Ac_20 40, methylene chloride 80, and H_2S0b o.2 g. This mixture is held at 40° and cellulose is added in the ratio 1/24. The rate and amount of AcOH formed during the acetylation is determined by measuring the condition at regular time intervals up to 60 min. The change in condition or rate

of change can be plotted against time and gives an expression of reactivity for acetylation of the cellulose sample. The standard analyses are given for 2 wood-cellulose and a cotton-linter sample. The influence on reactivity of drying and of pretreatments of cellulose were also studied.

TEXTILE EDUCATION AND RESEARCH J

AATCC opening days sessions

Anon. *Am .Wool Cotton Reptr. 65*, 67, 69, 71, 73-4 (Oct. 18, 1951).

Abstracts of the papers on dyeing and printing read at the opening sessions of the 30th National convention of the American Association of Textile Chemists and Colorists are presented.

A century of cotton textiles

Anon. *Textile Industries and Fibres 12*, 182 (June 1951).

See front section.

Fabric filter media

E. G. Smith. *Chem. Eng. Progress 47*, 545-49 (Nov. 1951).

This paper deals with physical properties of fabric filter media, their relation to difficulties encountered in filtering operation, together with a description of the chief causesof these difficulties. Also included is a discussion of new types of filter fabric construction and description of their physical properties.

Position of the textile industry in relation to research and development

Richard D. Wells (Paper presented before the Textile Research Institute, 22nd Annual Meeting).

See front section.

The impact of research in the textile industry.

Anon. *America's Textile Reptr. 65*, 9-11, 45 (Nov. 29, 1951).

A report on the 22nd annual meeting of the Textile Research Institute is given and includes notes on some of the subjects discussed, such as research on ageing and steaming of wool; the consumer quality characteristics of cotton and their implications for research; the fineness of cotton; etc.

The Japanese Textile Industry

Anon. *Whitin Review 18*, 28-34 (Sept.-Oct. 1951).

See front section.

CREDIT WHERE CREDIT IS DUE. Technical developments and service at the Institute of Textile Technology during the past two years have broken all previous Institute records. The reasons for the rapid progress are many. But a large share of the credit is attributed to the group of men pictured above, and to the healthy interchange of technical ideas and suggestions between the above members of the Technical Advisory Committee and the research staff at the special two - day conferences held at the Institute every three months.

In introducing this ANNUAL MEMBERSHIP EDITION of the TEXTILE TECHNOLOGY DIGEST — which is normally a non-picture periodical — we believe it is fitting and proper to acknowledge our debt to the above men whose persistence and hard work have been all-important factors in the affairs of the Institute, as well as those of the DIGEST.

Left to right: Dr. J. L. Vaughan, President of the Institute; Norman C. Armitage, President, Deering-Milliken Research Trust; Roger Milliken, President, Deering Milliken Company; L. W. Deaver, Vice President & General Superintendent, Cherokee Textile Mills; W. J. Still, Vice President, Borden Mills, Inc.; Dr. Jack Compton, Technical Director of the Institute; Walter Regnery, President, Joanna Cotton Mills Company; R. H. Tuttle, Director of Research and Quality Control, Fieldcrest Mills; A. W. Bell, Vice President and General Manager, American Yarn and Processing Company; M. Earl Heard, Vice President in charge of Research, West Point Manufacturing Company; J. W. Swiney, Superintendent of Bleachery, Fulton Bag and Cotton Mills; Howard Baetjer II, Mount Vernon-Woodberry Mills, Inc.; and T. C. Drew, Director of Research, Spartan Mills, Beaumont Division.

Not shown in this photograph are the newly elected members of the Technical Advisory Committee: J. S. Kenrick, Vice President, Aberfoyle Manufacturing Company; A. Marshall Moseley, Technical Superintendent, Thomaston Mills; R. W. Philip, Vice President, Callaway Mills Company; A. H. Randall, Vice President, Alabama Mills, Inc., R. C. Reinhardt, Jr., Superintendent, Valley Falls Plant, Martel Mills Corporation. H. A. Pickford, General Manager, Crompton-Highlands Mills, Inc., was absent when the picture was made.

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Syton increases yarn strength from 10%-to-30%; provides better carding, more uniform, round roping or roving, fewer ends down, closer spins.

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The foremost and outstanding method for wool shrinkage control: Resloom, Monsanto's melamine resin. Shirting with Resloom got as many as 75 machine washes with less than 5% shrinkage.

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Monsanto's Merlon gives added body to woolen suitings.

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Reslcom builds body into the fabric, in addition to washability; produces better drape and better tailor-ability.

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For viscose and acetate, Monsanto's Rezgard. Fugitive-type, durable to dry cleaning; does not alter tensile strength or other fabric characteristics.

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The Merlons improve hand and give improved wear resistance.

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Resloom provides durable wrinkle-resistance on a wide range of cotton constructions.

For Flame Retardance

Monsanto's Rezgard A meets New York City standards for fire retardants on textiles.

Annual Membership Issue

FROM JANUARY 21 THROUGH JANUARY 23, there was a series of important meetings at the Institute of Textile Technology. Under the Chairmanship of Dr. J. L. Vaughan, Institute President, a Conference of Membership highlighted the practical use Member Mills have made of Institute research. The Conference followed a regular meeting of the Technical Advisory Committee and preceded the Quarterly Meeting of the Board of Trustees.

As described by the Chairman of the Board of Trustees, Mr. Roger Milliken, who attended all three meetings, the Membership Conference was one of the most enthusiastic ever held at the Institute. Only about 80 members were expected. Yet, more than 115 attended the Conference.

This Annual Membership Issue includes a description of the Membership Conference, as well as other interesting aspects of the research program as organized and conducted at the Institute.

Other features describe some of the aims of textile research in general. Outstanding Articles of the Year comprise an 18-page section, and the regular "Textile Reader's Digest" brings some of its best of current technical reading to this special issue.